

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP 2004/012340

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ H0185/343, H0185/183, H01L33/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H0185/00-5/50, H01L33/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Japanese Utility Model Gazette 1922-1996, Japanese Publication of Unexamined Utility Model Applications 1971-2004, Japanese Registered Utility Model Gazette 1994-2004, Japanese Gazette Containing the Utility Model 1996-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

JICST, Elsevier, IEEE/IEE Electronic Library

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2002-43695 A (SHARP CO., LTD.) 2002.02.08, [0012] - [0013] (No family document)	1-4, 6-10
Y	JP 2003-197969 A (MITSUBISHI DENSEN INDUSTRIES CO., LTD.) 2003.07.11, [0025] (No family document)	1, 4
Y	JP 2003-101081 A (NICHIA CHEMICAL INDUSTRIES CO., LTD.) 2003.04.04, [0046] & JP 10-190053 A	1, 4
Y	JP 11-46038 A (NICHIA CHEMICAL INDUSTRIES LTD.) 1999.02.16, [0015], [0039] (No family document)	6-7
Y	US 6100586 A (Chen et al.) 2000.08.08, Lines 64, Column 3 to Lines 22, Column 4, FIG.1 & EP 880181 A2 & EP 880181 A3 & JP 11-040887 A	6-7



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13.10.2004

Date of mailing of the international search report

02.11.2004

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Journal of Crystal Growth, Volume 124, Issues 1-4 , 1 November 1992, Pages 763-771, especially Page 768	6-7
Y	Journal of Crystal Growth, Volume 170, Issues 1-4 , 1 January 1997, Pages 349-352, especially Page 351	8-9
Y	US 5578839 A (Nakamura et al.) 1996.11.26, Example 12, 14, 18 and 20 & US 5734182 A & US 5747832 A & US 5880486 A & US 6078063 A & US 6215133 B1 & US 6469323 B1 & US 2003/006424 A1 & US 2003/216011 A1 & DE 69319854 C & EP 599224 A1 & EP 844675 A3 & KR 9707135 B1 & JP 06-209120 A & JP 06-260680 A & JP 06-260681 A & JP 06-260682 A & JP 06-260683 A	10
A	JP 11-16812 A (TOYODA GOSEI CO., LTD.) 1999.01.29, [0015] (No family document)	1,5
A	JP 2003-229645 A (NIHON DENKI CO., LTD.) 2003.08.15, [0044] and FIG.11 & WO 2003/065526 A1	1,5
A	JP 2002-16284 A (TOSHIBA CO., LTD.) 2002.01.18, [0020], [0036] and [0042] (No family document)	1,4
PY	JP 2003-234545 A (SANYO DENKI CO., LTD.) 2003.08.22, [0113]-[0117] and FIG.34-36 (No family document)	1,5